

100x Trace Elements for M9 minimal medium

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An abbreviated version of this protocol was published in eLIFE in Oct 2020

Functional reconstitution of a bacterial CO₂ concentrating mechanism in *Escherichia coli*

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Detailed protocol

Intro

Recipe is for 100x Trace Elements solution used for liquid and solid media.

Materials

- EDTA powder
- NaOH 1 M stock (for pH of the EDTA solution)
- FeCl₃-6H₂O powder
- ZnCl₂
- 0.1 M CuSO₄ stock
- 0.2 M CoCl₂ stock
- 0.1 M H₃BO₃ stock
- 1 M MnCl₂ stock

Concentrations

Final concentrations are:

Component	Mass Concentration	Molar Concentration (uM)	Final Concentration in Media (uM)
EDTA	5 g/L	1.3e+4	1.3e+2
FeCl ₃ -6H ₂ O	0.83 g/L	3.1e+3	3.1e+1
ZnCl ₂	84 mg/L	6.20e+2	6.20e+0
CuSO ₄ - 5 H ₂ O	19 mg/L	76	0.76
CoCl ₂ - 6H ₂ O	10 mg/L	42	0.42
H ₃ BO ₃	10 mg/L	162	1.62
MnCl ₂ - 4H ₂ O	1.6 mg/L	8.1	0.081

Procedure:

1. Dissolve 5 g of EDTA in 800 mL milliQ.
2. Stir and pH to 7.5 with NaOH.
3. Keep stirring, add 830 mg of FeCl₃-6H₂O
4. Add 84 mg ZnCl₂
5. Add the liquid stocks in the following volumes (table below)
6. Add MilliQ water up to 1 L.
7. Sterile filter in 1 L filter system.

stock	stock concentration	volume
CuSO ₄ -5H ₂ O	0.1 M	765 uL
CoCl ₂ - 6H ₂ O	0.2 M	210 uL
H ₃ BO ₃	0.1 M	1.6 mL
MnCl ₂	1 M	8.1 uL

How to cite:(Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Flamholz, A. , Dugan, E. , Milo, R. and Savage, D. (2021). 100x Trace Elements for M9 minimal medium. Bio-protocol Preprint. [bio-protocol.org/prep1287](https://doi.org/10.7554/eLife.59882).
2. Flamholz, A. I., Dugan, E., Blikstad, C., Gleizer, S., Ben-Nissan, R., Amram, S., Antonovsky, N., Ravishankar, S., Noor, E., Bar-Even, A., Milo, R. and Savage, D. F.(2020). Functional reconstitution of a bacterial CO₂ concentrating mechanism in *Escherichia coli*. eLIFE. DOI: [10.7554/eLife.59882](https://doi.org/10.7554/eLife.59882)

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